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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/073,747	02/11/2002	Gary B. Gordon	10004367-1	5187

7590

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EXAMINER

JUBA JR, JOHN

ART UNIT

PAPER NUMBER

2872

DATE MAILED: 03/13/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/073,747

Applicant(s)

GORDON, GARY B.

Examiner

John Juba

Art Unit

2872

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☐ Claim(s) ____ is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 February 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). ____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____ 6) ☐ Other: ____

DETAILED ACTION

Claim Objections

Claim 12 is objected to because of the following informalities: In claim 12, "said first surface" lacks antecedent basis. Appropriate correction is required.

Claim Rejections - 35 USC § 112

Claims 5 – 9 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 5 is confusing and/or incomplete as to the cooperation of elements. In lines 3 – 4, it is not clear what is "adapted to expand", and text appears to be missing. Claims 6 – 9 inherit the deficiency of claim 5 through their dependency.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1 - 4, 14 - 17, 19, and 21 are rejected under 35 U.S.C. 102(b) as being anticipated by Thorsten, et al. When read in light of the specification, the "propagation axis" of the filter component is taken to be a surface normal, whereas the "optical path" is simply the path through the component. The claims recite a "length of physical path" along the optical path, which the examiner understands to be the geometrical path length, rather than optical path length. It is clear from Applicant's claim construction (claims 16 *vis à vis* claim 21) that the optical path is not required to be coextensive with the propagation axis, but rather is required only to only a component of physical length along the propagation axis. Turning to Thorsten, et al, the tuning assembly (24)(26)(28) engages a filter component (34) retained within a housing. The tuning assembly is adapted "to alter said length of said physical path of said optical filter component *along* said propagation axis" [emphasis added] by tilting the component to change the center of the pass band to a different frequency. That is, the physical length of the optical path *taken along* the filter propagation axis (*i.e.*, the surface normal) is related to the physical length through the component multiplied by the cosine of the angle between the optical path and the propagation axis. The claims simply do not recite that the tuning assembly alters the physical thickness *of the filter component* as taken along its propagation axis.

With regard to claims 2 - 4, the housing of Thorsten, et al may be regarded as including rigid tube (4) and at least lens holder (12). Thus it is seen that filter component (34) is arranged between retaining member (28) and part (12) of the housing that encloses the filter, whereby adjustment of the retainer position (as in

Figure 1B) changes the physical path. The housing further includes a cavity (6) for receiving the optical signal.

It is noted at this juncture, claim 15 includes a “means-plus-function” recitation. It is clear from the “three-prong analysis” (Federal Register/Vol. 65, No. 120, pp. 38510 - 38516; June 21, 2000) that the claim indeed invokes 35 USC §112, sixth paragraph. As there is no express *definition* of the means associated with the function recited, the associated structure then turns on what one of ordinary skill would identify as the structure for performing the recited function. In the instant case, the function of “altering said length of said physical path of said filter component along said propagation axis” clearly corresponds to changing the thickness of the filter component “and/or” tilting the filter component (Pg. 10, line 1). The examiner finds that the prior art means for tilting the filter component performs the same function, in substantially the same way, and produce substantially the same results, as the means disclosed. The, tuning means of Thorsten, et al are *prima facie* functional equivalents of the claimed means. See also *Micro Chem., Inc. V. Great Plains Chem. Co., Inc.*, 194 F.3d 1250, 52 USPQ.2d 1258 (Fed. Cir. 1999):

In construing claims drafted in § 112, ¶ 6 form, “[t]he statute does not permit limitation of a means-plus-function claim by adopting a function different from that explicitly recited in the claim. Nor does the statute permit incorporation of structure from the written description beyond that necessary to perform the claimed function.”

Claims 1, 15, 16, 17, 19, and 22 – 24 are rejected under 35 U.S.C. 102(e) as being anticipated by Liu, et al. Referring to Figures 3 – 5 and the associated text, Liu,

et al disclose a filter component (16) and tuning assembly (10)(18)(20) for applying tension or compression to the filter element to change the length of the physical path through the filter and thus for tuning the wavelength characteristic. Liu, et al refer everywhere to tuning of the filter "pass band", as well as tuning of a "fixed wavelength filter" [claim15], and distinct pass bands [claim 16]. Accordingly, one of ordinary skill would "at once envisage" a band pass filter. The examiner regards the piezoelectric element of Liu, et al as performing the same function in substantially the same way as the path length adjustment means of the instant disclosure.

Claims 1, 13 – 20, and 22 – 25 are rejected under 35 U.S.C. 102(e) as being anticipated by Lee, et al. Referring *for example* to Figure 4a and the associated text, Lee, et al disclose an optical band pass filter component (450) and a tuning assembly (451)(452) (461)(462) for applying tension to increase the length of the physical path through the filter, for applying compression for decreasing the length of the physical path through the filter, and/or reducing thermal drift of the filter characteristic.

Claims 1 - 4, 10 - 12, 15 – 18 and 22 are rejected under 35 U.S.C. 102(e) as being anticipated by Fernald, et al. Referring *for example* to Figure 3 and the associated text, Fernald, et al disclose an optical system comprising an optical filter component (12)(20) and a tuning assembly comprising a housing (90) having a cavity in which are disposed a the filter component, a retaining member (left-most piston 92)

arranged such than adjusting to position of the retaining member relative to the housing can change the physical path length through the filter.

With regard to claims 10, *et seq.*, the left-most piston (92) may be regarded as a first force distribution member configured to transmit compressive force substantially uniformly to the filter component. Fernald, et al disclose the force member (92) as being more rigid than the filter component (Col. 5, lines 13 – 16), and as having a substantially planar surface in contact with the filter component (Col. 4, lines 7 – 9).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 5, 8, and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fernald, et al, in view of Official notice. As set forth above for claim 4, Fernald, et al disclose much of the recited structure. Noting that the right-most annular piston (92) can be regarded as a force compensating member, Fernald, et al disclose the invention substantially as claimed. However, Fernald, et al do not disclose this force compensating member as being “adapted to expand to apply a compressive force to said optical filter component” as recited.

The examiner takes Official notice of the fact that fiber Bragg filter components were known to expand and suffer a red-shift of filter characteristic in response to

temperature increases. In mitigation of this, it was well known to apply a compressive force to such filter elements to compensate for the thermally-induced shift.

Since Fernald, et al teach that the materials used in the assembly walls are selected in accordance with their thermal and other material characteristics so as to apply the desired force to the filter element (Col 4, lines 63+), it would have been obvious to one of ordinary skill to select the materials of the assembly so that the force compensating element (92) is adapted to apply a compressive stress to the filter component with in response to temperature increases so as to be countervailing to the attendant red-shift of the filter component, as was well known.

Allowable Subject Matter

Claims 6 and 7 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

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The following is a statement of reasons for the indication of allowable subject matter: The prior art, taken alone or in combination, fails to teach or to fairly suggest the combination particular wherein the retaining member ^{cooperates} ~~cooperating~~ such that adjusting a position of ^{said} ~~the~~ retaining member can change the physical path length and the force compensating element is formed of a piezoelectric material and is adapted to expand in ^{response} ~~respond~~ to an applied ^{field} ~~file~~ to apply a compressive force to the optical filter component, as recited in claim 6. Although Fernald, et al do teach the use of a

piezoelectric element for applying a compressive force, it is not taught in combination with a retaining member having a position adjustable to change the path length.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Fan, et al disclose a temperature compensated optical filter employing a member for imparting tensile stress to the filter to decrease the physical path length.

Tehrani discloses a housing with piezoelectric tuning means for changing the physical path length within a Fabry-Perot cavity filter.

DeBoynton, et al disclose electrostrictive or magnetostrictive means to apply tension or compression to an optical filter component for tuning of a center wavelength or for temperature compensation.

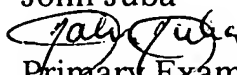
Diemeer discloses a tunable filter employing elastomeric means for tilting the filter element.

Sibilo, et al disclose a filter mounting for maintaining a calibrated compression over a wide range of temperatures.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Juba whose telephone number is (703) 308-4812. The examiner can normally be reached on Mon.-Fri. 9 - 5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cassandra Spyrou can be reached on Mon.- Thu., 9 - 5. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9318 for regular communications and (703) 872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

John Juba

Primary Examiner, GAU 2872

March 6, 2003